

ABSTRACT

An arrangement for visualizing adapted to visualize molecules, movements of molecules, thereof, and interactions between molecules, and molecular processes in a sample during use, in particular molecules and processes in biological cells, by using [[the]] a single dye tracing (SDT) method is described, said arrangement comprising at least one source of light; a detection and analysis system comprising a charged coupled device (CCD) camera; and a control unit.

at least one source of light for large area fluorescence excitation via single or multi-photon absorption by equal or different marker molecules on molecules in the sample, a sample holding means for accommodating the sample, a highly sensitive detection and analysis system comprising a charged coupled device (CCD) camera, the sample or the sample holding means, respectively, and/or the detection and analysis system being shiftable relative to each other during the measuring process, and a control unit for coordinating and synchronizing illumination times and, optionally, wave lengths of the lateral or vertical movement of the sample or of the sample holding means, respectively, with the sample as well as, optionally, the positioning and shifting of the images of each sample position of the pixel array of the CCD camera.